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(60) Divisional application:  
**17163056.9**

(54) **HERMETICALLY SEALED HYDROPHONES WITH VERY LOW ACCELERATION SENSITIVITY**

(57) An improved hydrophone is presented that has extremely low acceleration sensitivity, hermetic sealing, and is self-shielded. The hydrophone can also contain an integral amplifier and pressure/depth limiting switch. The hydrophone is also designed such that it can use a single standard piezoelectric sensing element in many hydrophone designs that have different acoustic pressure sensitivities but the same capacitance. Lastly, the sensor is also designed to be low cost in high volumes using standard accelerometer manufacturing techniques. A hydrophone is also designed such that it can use a single standard piezoelectric sensing element that can be incorporated into several hydrophone configurations with varying acoustic pressure sensitivities. The sensor is also designed to be low cost in high volumes.

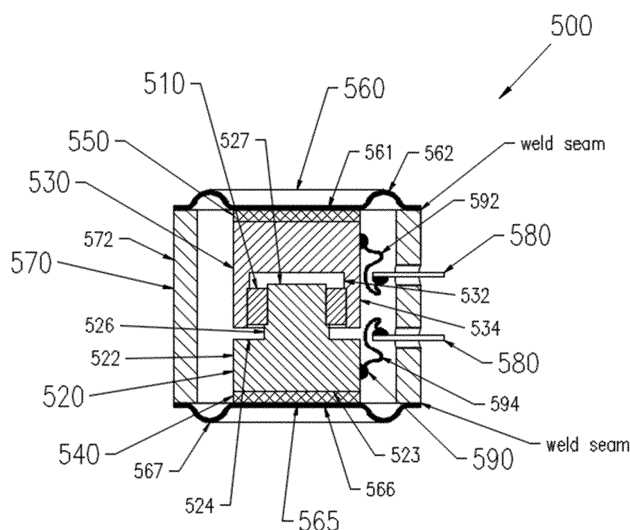


FIGURE 10A

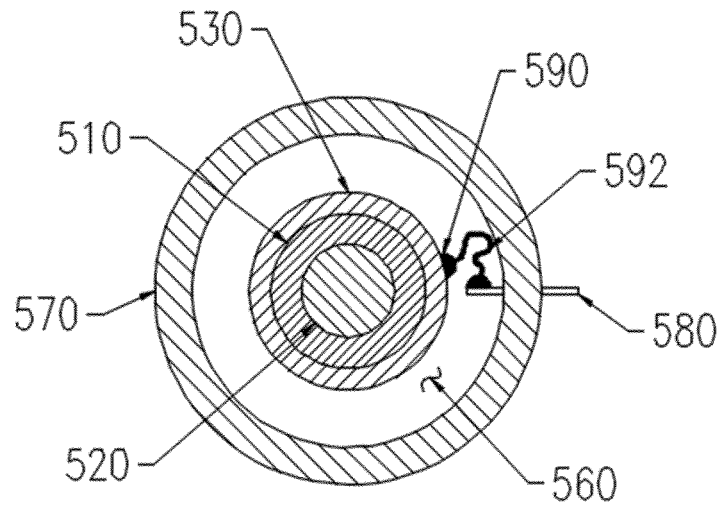


FIGURE 10B



## PARTIAL EUROPEAN SEARCH REPORT

Application Number

under Rule 62a and/or 63 of the European Patent Convention.  
This report shall be considered, for the purposes of  
subsequent proceedings, as the European search report

EP 16 19 9044

## DOCUMENTS CONSIDERED TO BE RELEVANT

| Category   | Citation of document with indication, where appropriate, of relevant passages  | Relevant to claim   | CLASSIFICATION OF THE APPLICATION (IPC) |
|--|--|---|---|
| X<br>A<br>A<br>A<br>A  | <p>US 2 272 984 A (RITZMANN OTTO F)<br/>10 February 1942 (1942-02-10)<br/>* page 3, column 2, line 63 - page 4,<br/>column 1, line 6; figure 6 *</p> <p>-----</p> <p>US 3 660 809 A (PEARSON RAYMOND H)<br/>2 May 1972 (1972-05-02)<br/>* abstract *</p> <p>-----</p> <p>CA 1 065 046 A (CANADA MAJESTY IN RIGHT<br/>OF) 23 October 1979 (1979-10-23)<br/>* claim 1 *</p> <p>-----</p> <p>US 6 279 395 B1 (INSALACO MICHAEL D [US]<br/>ET AL) 28 August 2001 (2001-08-28)<br/>* claim 1; figure 4 *</p> <p>-----</p> <p>EP 0 678 924 A1 (FRANCE ETAT [FR])<br/>25 October 1995 (1995-10-25)<br/>* figure 1e *</p> <p>-----</p> | <p>1,2,4,7,<br/>8<br/>3,5,6</p> <p>1-8</p> <p>1-8</p> <p>1-8</p> <p>1-8</p> | <p>INV.<br/>G01V1/18</p>                |
|  |  |   | TECHNICAL FIELDS<br>SEARCHED (IPC)      |
|  |  |   | G01V<br>B06B<br>G01P<br>H01L            |
| <b>INCOMPLETE SEARCH</b>   |  |   |   |
| <p>The Search Division considers that the present application, or one or more of its claims, does/do not comply with the EPC so that only a partial search (R.62a, 63) has been carried out.</p> <p>Claims searched completely :</p> <p>Claims searched incompletely :</p> <p>Claims not searched :</p> <p>Reason for the limitation of the search:</p> <p>see sheet C</p>   |  |   |   |
| Place of search  |  | Date of completion of the search  | Examiner                                |
| The Hague  |  | 19 May 2017   | Lorne, Benoît                           |
| <p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone<br/>Y : particularly relevant if combined with another document of the same category<br/>A : technological background<br/>O : non-written disclosure<br/>P : intermediate document</p> <p>T : theory or principle underlying the invention<br/>E : earlier patent document, but published on, or after the filing date<br/>D : document cited in the application<br/>L : document cited for other reasons</p> <p>&amp; : member of the same patent family, corresponding document</p> |  |   |   |

EPO FORM 1503 03/82 (P04E07)

**INCOMPLETE SEARCH  
SHEET C**

Application Number

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Claim(s) completely searchable:  
1-8

Claim(s) not searched:  
9-15

Reason for the limitation of the search:

Independent claims 1 and 9 do not comply with rule 43, paragraph 2. The applicant has been invited under Rule 62a(1) EPC to indicate the basis on which the search is to be carried out.  
The search has been restricted to the subject-matter indicated by the applicant [claims 1-8] in his letter of 27.03.2017 filed in reply to the invitation pursuant to Rule 62a(1) EPC.

**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.  
The members are as contained in the European Patent Office EDP file on  
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19-05-2017

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